

An Analysis of the Problems of Farmer-Supermarket Linkage Model (Nongchaoduijie) of Zhejiang Province in China

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An Analysis of the Problems of Farmer-Supermarket Linkage Model (*Nongchaoduijie*) of Zhejiang Province in China

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1. Introduction

For more than 3 decades, China's agricultural production has been conducted in a fragmented small-scale manner and the production of agricultural products remains highly dispersed. Farmer cooperatives are perceived as one way to resolve the conflict between "small-scale production" and the "big market" under the current food marketing system. Hence, a series of laws and policies including the "Law of the People's Republic of China on Specialized Farmer Cooperatives" and "Notice Regards to the Pilot Program of *Nongchaoduijie* (Farmer-Supermarket Linkage)" were enacted by the government since 2007 in order to improve the organizational level of farmers and promote the industrialization of agriculture. Both the establishment of farmer cooperatives and the promotion of the *Nongchaoduijie* program are viewed as way of constructing vertical integration of production and marketing chains under current economic conditions.

Considering the *Nongchaoduijie* program and farmer cooperatives in China are still in their fledgling start-up phase, they have encountered an array of different problems and challenges during this process of rapid development. The *Nongchaoduijie* program hasn't been carried out effectively, despite the fact that it has been promoting by the government since 2008. For instance, both supermarkets and cooperatives blame the other side for the failure of collaboration, which appears to be the most frequent issue in the program. Thus the importance of researching the *Nongchaoduijie* program is given more weight as we endeavor to understand the underlying inter-cooperation issues. Presently, there is research that shows that many farmer cooperatives have had difficulty in meeting the high requirements of supermarket chains in terms of volume of demand (Zhang and Li, 2010), similarly supermarkets cannot make timely payment settlements for agricultural products (Chen, 2011). Warehousing and logistics for small and

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medium-sized supermarkets without government subsidies are also lagging behind (Ma, 2010). The transmission of market and technical information from retailers to producers is vital for the *Nongchaoduijie* program (Zhao and Sun, 2011). However, the issue of the relationship between farmer cooperatives and supermarkets in the *Nongchaoduijie* program is not yet clear from these studies, especially with regard to how farmer cooperatives and supermarkets react to the requirements of the *Nongchaoduijie* program.

In this study we include three aspects: 1. we focus on and detail the development of farmer cooperatives and supermarkets in Zhejiang Province, 2. the aim of this study is to show the relationship in detail between farmer cooperatives and supermarkets in the course of their participation in the *Nongchaoduijie* program. 3. By revealing the existing problems of the *Nongchaoduijie* program, we try to seek a more effective method (e.g. establishing the federated-cooperatives) that results in more suitable conditions for the current development of agricultural product distribution.

Now we describe how we collected our data. We visited Zhejiang Province twice in 2014 (January-March, July-August) to conduct the survey. Firstly, we visited Zhejiang Province Department of Agriculture to collect data on farmer cooperatives, and conducted interviews with local government officers in order to collect information about the support policy related to farmer cooperatives in January 2014. We also interviewed the manager of Hangzhou Lianhua Supermarket in order to understand the *Nongchaoduijie* program from the supermarket's perspective. Then we sent 60 questionnaires to farmer cooperatives in 6 cities and recovered 47 questionnaires in July 2014. Whilst 6 were discarded due to missing information, 41 were valid samples. In order to cover all the major cities in Zhejiang Province, we also collected information about 34 farmer cooperatives for the remaining 5 cities via the Internet. We therefore use the data of 75 farmer cooperatives (for Table 5) in 11 major cities in Zhejiang Province. Finally, we conducted a field survey of two farmer cooperatives in Huzhou City to understand the participation of farmer cooperatives in the *Nongchaoduijie* program.

This paper is organized as follows. The definition and development of the *Nongchaoduijie* program is presented in the next section. Section 3 introduces the development of farmer cooperatives in Zhejiang Province. Section 4 discusses the *Nongchaoduijie* program in Zhejiang Province. We give our conclusions in Section 5.

2. Definition of *Nongchaoduijie* and its Development

2.1 Definition of *Nongchaoduijie* and its background

Nongchaoduijie is a program that was launched by the Ministry of Commerce together with the Ministry of Agriculture in 2008; which literally translates as “Farmer and Supermarket Link-up”. It encourages supermarket chains to purchase directly from farmer cooperatives or production bases in an effort to reduce intermediate links in the distribution channels of

agricultural products. The *Nongchaoduijie* program builds a bridge between supermarkets and producers. Supermarkets can reduce cost in the marketing chain and save time from field to store by purchasing directly from producers. This will help supermarket strengthen its core competitiveness (Gale and Hu, 2012). On the other hand, small-scale farming structure overlaid with an equally diffused network of brokers in rural areas together make the transaction cost very high for farmers selling their products. Farmers' production is guided by market information and supermarket chains extending to the production will be an effective way for the transmission of market information from consumers to producers.

Moreover, food safety scares due to the problems relating to pesticide residues that China has frequently experienced in recent years is another reason for promoting the *Nongchaoduijie* program. The government is also encouraging farmer cooperatives to act as adopters of food safety and quality standards to ensure improved quality of the foods produced (Jin and Zhou, 2011).

2.2 Policy Support for the *Nongchaoduijie* Program

A series of policies were introduced by the central government after the launch of the *Nongchaoduijie* program. In December 2008, the Ministry of Agriculture and the Ministry of Commerce jointly issued "Notice regards to the pilot program of the *Nongchaoduijie*" marking the beginning of the launch of the *Nongchaoduijie* pilot program. This notice pointed out that the *Nongchaoduijie* program has important meaning, serving as an effective means of reducing the cost of agricultural products distribution, solving the problems of difficulty in selling fresh produce, and building a modern distribution system of agricultural products as well as increasing farmers' incomes.

In 2009 the No.1 Central Document¹ "Several Opinions of the CPC² Central Committee and the State Council on Promoting the Steady Development of Agriculture and Continuous Increase of Farmers' Income" stated the aim to support large supermarket chains and agricultural logistics companies in launching the *Nongchaoduijie* program and establishing direct procurement production bases. Then in June 2009, the Ministry of Commerce, Ministry of Finance and the Ministry of Agriculture jointly issued "Notice Regards to Doing Good Work on Pilot Program of *Nongchaoduijie*", actively promoting the establishment of the direct linkages between farmer cooperatives, large supermarket chains and agricultural logistics companies. The No.1 Central Document in 2011 "Opinions of the CPC Central Committee and the State Council on Exerting Greater Efforts in the Overall Planning of Urban and Rural Development and Further Solidifying the Foundation for Agricultural and Rural Development" again requested the comprehensive promotion of the *Nongchaoduijie* program. In 2013 the Ministry of Commerce and the Ministry of Agriculture released "Guidance on Comprehensively Promoting the *Nongchaoduijie* program", which proposed guidelines, major tasks and measures of safeguards for comprehensively promoting the *Nongchaoduijie* program.

In terms of financial support, the central government allocated 400 million Yuan³ and launched pilot programs in 17 Provinces,⁴ supporting 205 projects of establishment of cold chain facilities and agricultural brands. In 2010 the central government allocated 680 million Yuan to support the modern distribution system of agricultural products and further promoted the *Nongchaoduijie* program in 31 cities in 8 Provinces.

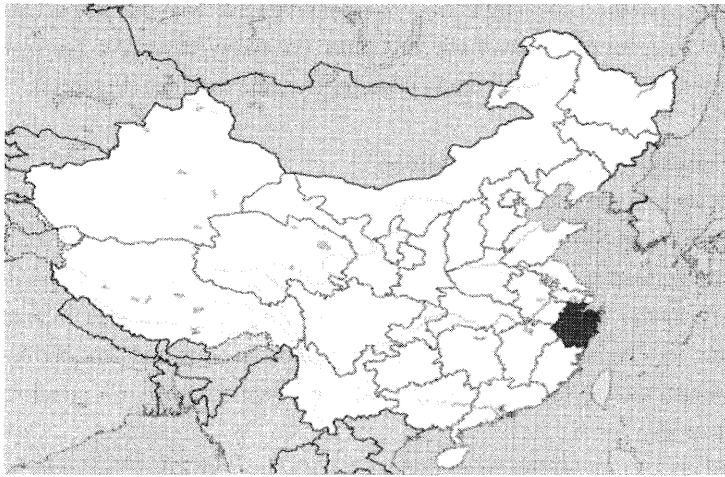


Figure 1. Map of Zhejiang Province

Source: <https://en.wikipedia.org/wiki/Zhejiang>.



Figure 2. Divisions of Zhejiang Province

Source: <http://www.sewbiz.de/zhejiang/>.

3. The Development of Farmer Cooperatives in Zhejiang Province

There are two reasons for targeting Zhejiang Province (Figure 1) in this study. The first reason is that Zhejiang Province has ranked top over 28 consecutive years among Provinces of China, in terms of per capita net income of rural residents (Ministry of Agriculture, 2013). The per capita net income of rural residents reached 16,000 Yuan (2,606 USD) in 2013. Secondly, Zhejiang Province put the “Zhejiang Farmer Cooperative Law” into practice in 2005, which is the first provincial level cooperative law in China. For these reasons, it can be argued that Zhejiang represents the most agriculturally developed region in China (Figure 2).

3.1 Farmer Cooperatives' Current Situation

Zhejiang is located on the southeast coast of China and traditionally known as the “Land of Fish and Rice, Home of Silk”. Highlands and mountains account for over 70% of its total land area and the arable land is only 0.038 hectares per capita. Rice production and livestock are situated mainly in the plains while vegetables and fruits are produced in highlands and mountains. Due to Zhejiang Province being more mountainous and less arable as well as being more industrialized, farmer cooperatives have been formed in a small-scale pattern showing great variety.

The total population of Zhejiang Province in 2012 was 54,728,000 of which 34,599,000 were farmers, accounting for 63.2% of the total population. Only 1,002,800 farmers had joined farmer cooperatives, accounting for 2.9% of the total number of farmers. The number of farmer cooperatives in Zhejiang Province increased from 5,141 in 2007 to 37,428 in 2013 while the number of members increased from 385,000 to 1,149,000 - a growth rate of 628% and 198% respectively (Figure 3).

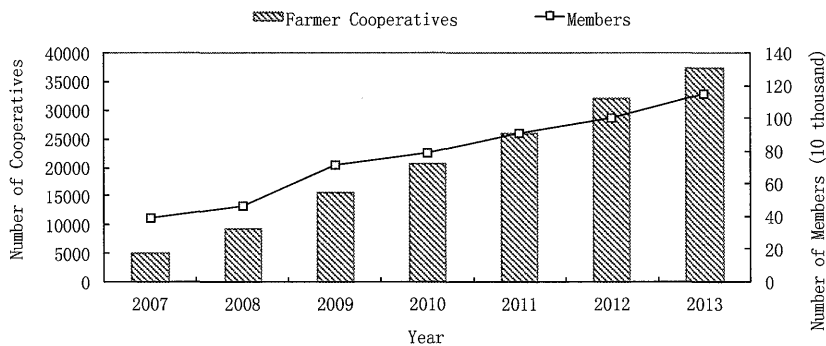


Figure 3. Information of Farmer Cooperatives in Zhejiang Province

Source: Provided by Zhejiang Province Department of Agriculture, 2013.

3.2 Farmer Cooperatives' Formation Pattern

There are six main types of formation patterns⁵ for farmer cooperatives in Zhejiang Province. First, Capable Person-based type: farmers in the rural areas participate in the cooperatives set-up by a large production household or large sale household by utilizing their technologies and sale channels. Second, Rural Primary Organization-based type: cooperatives set-up by rural primary organization based on local leading industries, which organize professional farmers to carry out services and further, promote the leading industry. Third, Local Agricultural Technology Promotion Center-based type: cooperatives led by the local agricultural technology promotion centers along with other agriculture-related services sectors. Fourth, Supply and Marketing Cooperatives-based type: farmer cooperatives formed by the Supply and Marketing Cooperatives, which then re-associate with farmers. Fifth, Agricultural Leading Company-based type: farmer cooperatives set-up based on the local agricultural company engaged in processing or marketing. Sixth, Wholesale Market-based type: cooperatives set-up based on the local wholesale market by taking advantage of its function as intermediaries and agricultural products distribution center. Among these six types, Capable Person-based type and Local Agricultural Technology Promotion Center-based type are the two main formation patterns of farmer cooperatives in Zhejiang Province (Xu and Huang, 2009).

3.3 Farmer Cooperatives' Category

Table 1 shows the categories of farmer cooperatives in terms of enterprise in Zhejiang Province, crop-farming cooperatives accounted for 58.4% of the total, of which 20.5% were fruit cooperatives and 14.9% were vegetable cooperatives. The livestock husbandry cooperatives and fishery cooperatives accounted for 21.8% of the total. It shows that farmers are more familiar with these traditional industries (e.g. Crop farming or livestock husbandry), as crop farming and livestock husbandry do not require high investment compared with agricultural products processing industries.

Table 1. Farmer Cooperatives' Category of Zhejiang Province

Category	Crop farming	Livestock husbandry	Fishery	Forestry	Others
Proportion	58.4%	13.9%	7.9%	7.1%	12.7%

Source: Provided by Zhejiang Province Department of Agriculture, 2013.

4. *Nongchaoduijie* in Zhejiang Province

4.1 Supermarkets and Farmer Cooperatives in *Nongchaoduijie* Program

After the *Nongchaoduijie* program was launched in 2008, a series of relevant policies in support of big supermarket chains in building distribution centers and infrastructural facilities to adapt to the *Nongchaoduijie* program were also implemented by the Zhejiang Provincial

Government. By the end of 2012, there were 27 supermarket chains in 11 major cities in Zhejiang Province that have participated in the *Nongchaoduijie* pilot program. The cities of Hangzhou, Ningbo and Quzhou each have four supermarket chains, which have collaborated with 250, 215, and 232 farmer cooperatives respectively. Jiaxing City had only one supermarket and 25 farmer cooperatives that were participating in the *Nongchaoduijie* pilot program (Table 2). In terms of the number of farmer cooperatives, cities that are closer to the plains such as Hangzhou (2,365), Ningbo (2,298), and Jiaxing (916) tend to have fewer farmer cooperatives due to the limited land area, whereas cities that are closer to mountains have more farmer cooperatives. The farmer cooperatives in Zhoushan City are characterized by small quantity and size due to their island-like features.

Table 2. Information of *Nongchaoduijie* in Zhejiang Province

Name of Cities	Hangzhou	Ningbo	Quzhou	Wenzhou	Lishui	Taizhou	Huzhou	Zhoushan	Jiaxing	Shaoxing	Jinhua
Total Number of Cooperatives	2,365	2,298	5,564	7,718	3,026	6,416	1,306	422	916	2,944	4,394
Number of Pilot Cooperatives	250	232	215	64	109	65	23	20	25	31	27
Number of Pilot Supermarkets	4	4	4	2	3	2	2	2	1	2	2

Source: Provided by Zhejiang Province Department of Agriculture, 2013.

4.2 Relationship Among Government, Supermarkets and Farmer Cooperatives

The operation scale of both supermarkets and farmer cooperatives plays a crucial role in the *Nongchaoduijie* program, because the government is setting requirements for supermarkets that expect to participate in the *Nongchaoduijie* program, large supermarket chains also tend to work with farmer cooperatives with large-scale production and guaranteed stable supply. In particular, supermarkets that expect to participate in the *Nongchaoduijie* program usually need to reach certain standards set by the government (Ministry of Commerce). This includes registered capital over a million Yuan (central and western region over half million); owing over 20 supermarket chain stores or business area no less than 10,000 square meters; fresh produce over 15% of total sales. After passing the authorities' verification, a whole range of subsidies and support will be granted to supermarkets for the purpose of helping them build distribution centers and infrastructural facilities and etc.

Table 3 shows the four retailer companies that had been verified by the Department of Commerce of Zhejiang Province and were selected to participate in the *Nongchaoduijie* pilot program in 2012. The registered capital of each of the four companies reached over 3,000,000 Yuan. Lianhua Distribution Co. Ltd is a subsidiary company specializing in agricultural products procurement and distributions for Huangzhou Lianhua Supermarket; it is working with 215 agricultural production bases and owns 204 chain stores. Huarun Wanjia and Hangzhou Wumei are also big retailer chains and rank within China's top ten retail companies. The proportions of fresh produce from both companies accounted for over 15 % of their total sale volume.

Table 3. Retailer Companies Participating in the *Nongchaoduijie* Plot Program of Hangzhou City, 2012

Name of the Company	Hangzhou Lianhua	Huarun Wanjia	Hangzhou Wumei	Zhejiang Xintianyuan
Registered Capital (10 thousand Yuan)	5,000	5,000	12,800	3,000
Sale of Production (10 thousand Yuan)	86,500	19,400	27,500	4,880
Fresh Produce %	85%	15.4 %	21%	40%
Direct-Sale Fresh Produce %	75%	30 %	18%	100%
Number of Production Bases	215	10	13	12
Number of Chain stores	204	7	18	23

Source: Department of Commerce of Zhejiang Province, 2012.

Table 4. Requirements for Wal-Mart's suppliers

Slaughter Rate:	Pig	Cow	Sheep	Chicken	Area:	Fruit and Vegetable	Aquaculture	Operation Time:	Seafood Processing
Head /per								Over 2	5,000
Year:	10,000	500	20,000	50,000	Mu:	1,000	500	Years:	ton/year

Source: Report of *Nongchaoduijie* Wal-Mart, 2010.

Table 5. Cultivated Land Area of Farmer Cooperatives in Zhejiang Province

City Names	No. Samples	Valid Samples	Size. MIN (Mu)	MAX	Average Size
Hangzhou	13	11	280	2,300	1,008
Ningbo	6	5	725	2,700	1,569
Taizhou	11	10	300	4,000	1,744
Huzhou	7	5	60	1,700	867
Jiaxing	5	5	500	2,500	1,155
Jinahua	5	5	70	840	367
Quzhou	7	7	100	1,200	545
Wenzhou	7	7	100	500	284
Lishui	6	6	100	1,360	497
Zhoushan	7	7	100	500	274
Shaoxing	7	7	200	1,200	476
Average Size of Zhejiang					798

Source: From Survey in Zhejiang Province, 2013

Note: * The data in top part of table was collected through questionnaires by the author in Zhejiang Province in 2013, while the data in bottom part of table was collected via the internet.

In addition, the supermarkets set certain requirements for farmer cooperatives with which they expect to collaborate. Table 4 shows the requirements that farmer cooperatives have to meet in order to become Wal-Mart's suppliers. Wal-Mart requires its potential partner fruit cooperatives to have a cultivated land area of at least 1000 Mu⁶ if they wish to collaborate. As for Zhejiang Province it is difficult to form large-scale agricultural production due to a high-density population and limited arable land. Table 5 describes the cultivated land area of fruit farmer cooperatives that were surveyed in 11 major cities in Zhejiang Province; it shows that the average size of farmer cooperatives in Zhejiang Province is about 798 Mu, which is less than that of the supermarket's requirement of 1000 Mu. Thus, conflict occurs when small-sized farmer cooperatives have difficulty in meeting the requirements from the supermarkets. Except for farmer cooperatives that received supports from the government, very few farmer cooperatives in Zhejiang Province can actually reach the standards of the *Nongchaoduijie* program. A great majority of farmer cooperatives that were surveyed produced a single variety of products (e.g. grapes). This makes it difficult to satisfy the supermarket's requirement, in particular for product diversification.

4.3 Field Survey to Farmer Cooperatives and Supermarket in Zhejiang Province

We selected two grape-farmer cooperatives in Huzhou City as examples in illustrating the obstacles that cooperatives are facing related to the *Nongchaoduijie* program. Huzhou City located on the Hangjiahu Plain, which is the most economically developed area, as well as the biggest plain area in Zhejiang Province. Huzhou City also scored Number One in "The Overall Evaluation Report of Zhejiang Agricultural Modernization Progress in 2013" issued by Zhejiang Provincial Department of Agriculture, which shows that Huzhou City is the most agriculturally developed area in the whole province (Zhejiang Province Department of Agriculture, 2014), and we consider the most agriculturally developed area to be capable of representing the direction of future development of agriculture. Two Farmer Cooperatives we selected in Huzhou City are representative for two reasons. First, the formation pattern of both cooperatives is Capable Person-Based type, which represents the most farmer cooperatives in Zhejiang Province. Second we selected one cooperative that participated in the *Nongchaoduijie* program while the other did not participate in the *Nongchaoduijie* program. Therefore, this allows a comparison of the *Nongchaoduijie* program.

Sanhe Grape Farmer Cooperative was founded in 2005; with 184 members and 1864 Mu cultivated land area. It was the first grape-cooperative established in Changxing County, Huzhou City. It was recognized as a model cooperative by the Zhejiang Provincial Government. Although the *Nongchaoduijie* program had been promoted by the local government since 2008, Sanhe Grape Farmer Cooperative showed no interest in participating in this program for three reasons. Firstly, the cooperative encountered constraints when signing contracts with supermarkets. The "Guidance on Comprehensively Promoting *Nongchaoduijie*" issued by the Ministry of Agriculture and the Ministry of Commerce in 2011

promulgated the regulations on rules of the *Nongchaoduijie* program. It prohibited supermarkets from charging admission fee to farmer cooperatives that expected to participate in the *Nongchaoduijie* program. However, in reality, admission fee ranging from 3,000 to 5,000 Yuan still has to be paid by cooperatives working with the supermarket. Moreover, their contract includes a condition that cooperatives have to bear the cost of damage incurred during transportation or substandard products, in spite of the fact that cooperatives must already meet the high standards set by supermarket for long-term stable supply. The second reason is long payment delay for sold products. It usually takes 20 to 30 days for supermarkets to make a payment for the sold product, which often puts cooperatives into a situation of lacking operating capital. Therefore, most of the farmer cooperatives preferred “payment on delivery”. The third reason is the cooperative’s operation is not regulated. Cooperatives are established in accordance with the law and had a sound administration system at the beginning; however, there is no relevant guidance on how to develop and operate cooperatives after establishment, which has led to many irregularly, operated farmer cooperatives. According to the manager of Sanhe Grape Farmer Cooperative, farmer cooperatives merely functioned as one of the important tools of the government for the purpose of agricultural technology extension, whereas to farmers, farmer cooperatives serve as an important status for the purpose of applying to participate in projects or obtaining financial support from the government.

Shuijing Yu Grape Farmer Cooperative was established in 2007, with 174 members and 1170 Mu cultivated land area. Although Shuijing Yu Farmer Cooperative participated in the government-promoted *Nongchaoduijie* program. Fruit product is directly procured from cooperative to supermarket. Nonetheless, the cooperative still has to employ brokers as intermediaries in the case of payment settlement. Thus it employs the “cooperative + broker + small and medium-sized supermarket” sale model. This cooperative sells around 30% of its products via this channel, and the rest of the products are sold to the buyers who directly come to the production base.

From the supermarket’s perspective, the *Nongchaoduijie* program is not always able to trade most of the fresh produce. Supermarkets engaged in the fresh produce business often have a very small profit margin and merely employ it as means of attracting customers. Therefore, large supermarket chains are often reluctant to participate into *Nongchaoduijie* without government support. According to the manager of Hangzhou Lianhua Supermarket, supermarket chains prefer to procure agricultural products from their own production base or distribution center to realize stable supply. However, supermarkets must have a high enough economic strength in order to establish their own production base. This also means the supermarkets that own production bases are limited to just a few large chain supermarkets companies.

5. Conclusions and Recommendations

Now we summarize the conclusions of our study. Firstly, the above statistical data shows that, even though the total number of farmer cooperatives in Zhejiang Province has a trend of yearly increases, the number of cooperatives that participated in the *Nongchaoduijie* program accounted for only a tiny proportion. From our survey we see that the situation is due both to the government setting a very high entry barrier for supermarkets participating in the *Nongchaoduijie* pilot program, and to the supermarkets creating requirements that are difficult for the farmer cooperatives to meet (such as the size of farmer cooperatives). Thus small and medium-sized supermarkets and cooperatives are excluded from the program at the same time. Note that this conclusion also follows from a paper of Gale and Hu (2012). Secondly, we can see that the relationship between supermarkets and farmer cooperatives in the *Nongchaoduijie* program is not only restrictive, but also contains an uneven distribution of bargain power. This might explain why the *Nongchaoduijie* program remains in its first phase even though it has been promoting by the government for so many years. Thirdly, our field survey of two farmer cooperatives showed that unfair contracting conditions with supermarkets and long payment delays are the two main concerns preventing farmer cooperatives from participating in the *Nongchaoduijie* program. As for the farmer cooperatives that have participated in the *Nongchaoduijie* program, collection of bill from supermarkets is still the most concerning issue. In this case, most farmer cooperatives employ brokers in dealing with payment delays for sold products.

We present the following suggestions. Firstly, from a win-win perspective for both supermarkets and cooperatives, improving management of farmer cooperatives should be given the highest priority. This is because according to our survey, most farmer cooperatives were not operating in compliance with “Farmer Cooperative Law” upon finishing registration. Although the number of farmer cooperatives increased extraordinarily after the newly enacted Cooperative Law, which provided legal environment for the establishment of cooperatives in China, it’s still not clear how to successfully develop and operate cooperatives. Secondly, establishing the federated-cooperative of farmer cooperatives of different size and developing new agricultural entities could be one of the ways to reduce the unbalanced situation. Third, the long payment period for sold products from farm cooperatives was the main concerns for most farmer cooperatives. This reflects the fact that farmer cooperatives in Zhejiang Province have encountered problems of insufficient capital and a financial drought, which has become a rate-determining step for their development. This may be based on the underdevelopment of lending policy of relevant financial institutions and the inability of farmer cooperatives to provide enough collateral to banks when they desire access to credit. A good social credit system, as well as new types of rural financial institutions, should be developed in order to help farmer cooperatives gain access to capital.

Endnotes

¹ No.1 Central Document originally referred to the first document of the CPC Central Committee issued annually. From 2004 to 2014 consecutively released first document emphasizing the “Three Issues Concerning Agriculture” (agriculture, rural areas and farmers).

² CPC: Communist Party of China.

³ 1 Yuan = 0.16 USD, according to the exchange rate in 2014/11/18.

⁴ Hebei, Jilin, Zhejiang, Anhui, Jiangxi, Shandong, Qingdao, Henan, Hubei, Hunan, Hainan, Chongqing, Sichuan, Guizhou, Shanxi.

⁵ The formation pattern of farmer cooperatives reflects the identities of their founders, as these farmer cooperatives usually revolve around the industries or professions most familiar to the founders.

⁶ 1 Mu equals 667 square meters.

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